MONICON
ADVANCED GAS MONITORING INSTRUMENTS

IR80 carbon dioxide Monitor

Features

- *Microprocessor based*
- *4-20mA Analogue Output*
- *Voltage free relay contacts*
- *RS485 digital interface*
- *Alphanumeric dot-matrix display*
- *"One Person" calibration*
- *Dual detectors*
- *Temperature compensation*
- *Standalone operation*

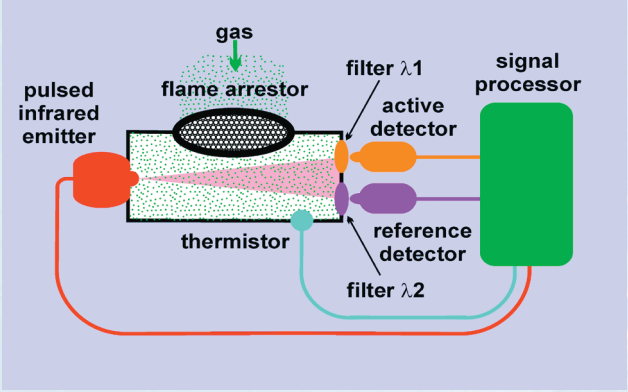
The Monicon IR80 is a high quality, self contained, NDIR (Non Dispersive Infra Red) gas sensor that offers a host of sophisticated features to provide fast, reliable warnings against exposure to dangerous concentrations of carbon dioxide.

The IR80 will operate as a standalone instrument or in conjunction with a controller or a computer. It is housed in an attractive, compact enclosure and may be configured or calibrated by one person.

The gas concentration is indicated on a rugged 8-character alphanumeric display which also indicates instrument status.

The IR80 is fully user programmable and no physical adjustments are necessary during calibration as the on-board computer assists the calibration procedure.

All user variables are stored in non-volatile memory (EEPROM) and retained indefinitely even during total power failure.



Typical Applications for the IR80

- *Breweries*
- *Landfill Sites*
- *Food processing*
- *Soft Drinks Manufacture*
- *Cellars*
- *Chemical Processing*
- *Ventilation Systems*
- *Laboratories*
- *Mushroom Farming*
- *Greenhouses*

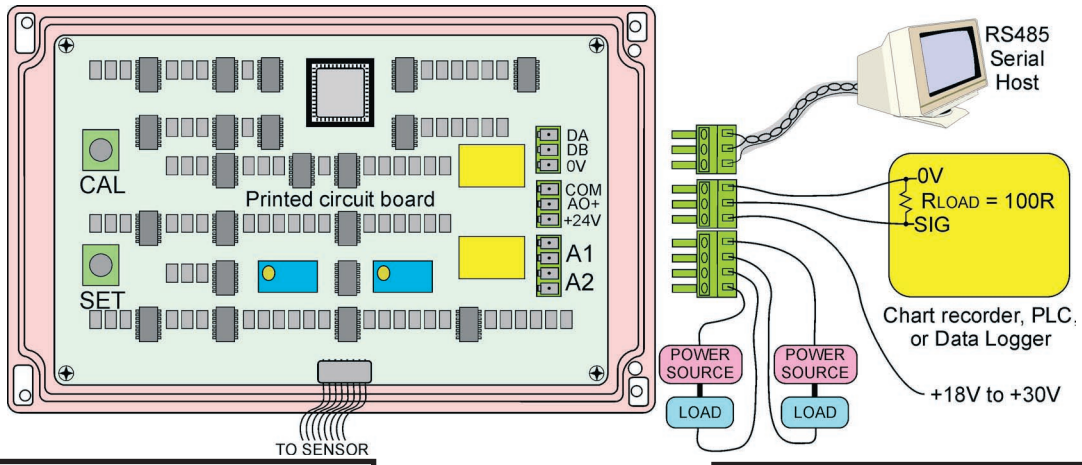
The IR80 uses advanced NDIR technology combined with surface-mount microprocessor and firmware technology. A pulsed infrared source emits a broad spectrum infrared beam within an optical cavity. The system measures the adsorption of infrared energy as it passes through a gas sample. Different gases have clearly defined absorption characteristics, their concentration can be determined by their absorption of infrared radiation at the wavelength determined by filter lambda 1 in the diagram.

To compensate for interfering factors filter lambda 2 isolates another wavelength which is used to measure the total transmission through the optical cavity and is not affected by the gas being monitored. By comparing the infrared energy reaching each of the two detectors, the concentration of the gas sample can be determined. The signal processor compares and linearises these two signals. A thermistor monitors the sensor temperature and the signal processor factors in variations caused by temperature changes.

The unit is calibrated or user-programmed by means of on-board pushbutton switches. The operator is then guided through a variety of options by a user-friendly menu. The CPU constantly verifies system operation. In the unlikely event of a fault, the operator is alerted with a helpful diagnostic display.

IR80 Specifications

Supply voltage	*Nominal 24Vdc (operates from 20Vdc to 35Vdc)*
Power consumption	*2W nominal, 2.3W maximum*
Circuit protection	*Electronic current limiter, 1.5A auto-reset*
Transient Protection	*PCB mounted, 3 Joule, Metal Oxide Varistor*
Analogue output	*4-20mA current source referenced to 0V*
Analogue output load	*100 Ohms typical, 500 Ohms maximum*
Operating temperature	*-20˚C to +50˚C*
Storage temperature	*-40˚C to +66˚C*
Humidity range	*10%RH to 90%RH (Non-condensing)*
Preconditioning Requirements	*Operational: 30 seconds, Specification: 60 minutes*
Full-Scale range	*0-1%, 0-2%, 0-3%, 0-5%, 0-10%, 0-25% or 0-100% CO_2*
Response time (T90)	*Typically <45 seconds*
Drift, S.T.P. continuous duty in air	*<3% over three months*
Linearity	*±5%*
Repeatability	*±2%*
Resolution	*1% on 0-1%, 0-25% & 0-100% ranges. 2% on 5% range.*
Sensor MTBF	*10 years (calculations based on MIL-HDBK-217F)*
Recommended Calibration Interval	*12 months (depending on application)*
Weight	*1.5Kg (including sensor)*
RS485 operating mode	*Slave mode, half duplex, polled*
Max. units on RS485 loop	*100*
RS485 comm parameters	*1200-N-8-1*
RS485 error checking	*1 byte checksum*
Unit interrogation time	*400mS*
Relay contacts	*SPST, NO, 230V @ 1A each for A1 & A2*
Option setting	*Digital setting (all options fitted as standard and user selectable)*
Alarm setting	*Digital setting (fully adjustable between 10% and 90% of full scale)*
Alarm types	*Energised/de-energised. Enrichment/deficiency. User selectable*
Recommended calibration flow rate	*500mL per minute*
Mounting holes	*4 holes, diam 5mm, spaced 145mm horizontally, 63mm vertically*
User variable storage	*Non-volatile RAM (EEPROM)*
Electromagnetic Conformance (EMC)	*Complies with EN50081 and EN50082*
Cable gland entry	*M20 x 1.5*
Terminations	*Detatchable, PCB mounted terminal blocks to accept 1.5mm² cable*
Enclosure	*Epoxy coated aluminium. Size W: 160mm H: 100mm D: 60mm*
Literature supplied	*24-page detailed instruction manual with wiring diagram*



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